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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,993	12/11/2001	Alan B. Touchberry	H16-25558US	3362
7590	06/15/2004		EXAMINER DONG, DALEI	
Dennis C. Bremer Honeywell International Inc. 101 Columbia Road P.O. Box 2245 Morristown, NJ 07962-2245			ART UNIT	PAPER NUMBER
			2879	
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Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/014,993	<b>Applicant(s)</b> TOUCHBERRY ET AL.	
	<b>Examiner</b> Dalei Dong	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 13 April 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,7,9-11 and 27-34 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-3,6,7,9-11 and 27-34 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 11 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 3 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,670,691 to Podgorski.

Regarding to claims 1, 3 and 10, Podgorski discloses in Figure 1, “a ring laser angular rate sensor apparatus 10. The assembly includes a mechanically and thermally stable block 15 such as fused quartz and the like. Block 15 provides plurality of interconnected cavities or tunnels including cavities 16, 17, 18, 19, 20, 21, 22, 23, and 24. Cavities 17, 20, and 23 form, at least in part, a triangular shaped optical closed-loop path *cavities 17, 20 and 23 forms the optical cavity*. At each of the corners of the block is provided a wave reflecting means which is illustrated in FIG. 1 by means 20a, 20b, and 20c, which respectively provide wave reflecting surfaces 21a, 21b, and 21c. The ring laser angular rate sensor apparatus also includes a first anode 30 in communication with cavity 18 and cavity 17, a second anode 31 in communication with cavity 24 and cavity 23, and a cathode 32 in communication with cavities 21 and 20’ (column 2, line 3-18).

Podgorski also discloses in Figure 1, “Anode 30 comprises a head portion 60 arranged in such a manner to engage block 15 surrounding cavity 18 *a hole located in* for

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sealing off the surrounding atmosphere from the gas filled cavity. Extending from head portion 60 is a stem portion 61 disposed in cavity 18. Substantially surrounding stem portion 61 is control guide 63 *forms the getter well around the getter* which may be cylindrical in shape. Also extending from head portion 60 is guiding means 63” (column 2, line 38-45).

Podgorski further discloses in Figure 1, “stem portion 61 *getter located in a getter well* is intended to be composed of, at least in part, a getter material, for example, an alloy of titanium. Guiding means 63 may be anodized aluminum having a function as will be described below. Head portion 60 is adapted to have terminal means for connecting anode 60 to an electric potential source” (column 2, line 46-51).

Podgorski further yet discloses in Figure 1, “the sputtering guide 63 surrounding the getter material stem portion 61 is provided so that only selected surfaces of the stem portion are sputtered to control the amount of degradation of the getter material as well as focus the sputtering away toward cavity 17” (column 3, line 29-34).

### **Claim Rejections - 35 USC § 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 2, 6-7, 9 and 11, rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,670,691 to Podgorski in view of U.S. Patent No. 5,056,102 to Galbrecht.

Regarding to claims 2, 9, it is old and well known in the art to utilize a barium alloy as the getter material for discharge device with inert gas, and further Applicant has disclosed that barium and titanium or zirconium alloys can used interchangeably as the getter material, and Podgorski teaches the use of titanium alloy as the getter material in column 2, lines 47-48. Furthermore, Podgorski discloses the claimed invention except for the getter composed of a barium alloy. Galbrech teaches in Figure 1, "getter assembly 10 is comprised of a snap-ring 15, a metallic extension member 20, and a getter pan 25. Snap-ring 15 includes holes 50, for positioning of getter assembly 10 in the gas discharge cavity in a manner as already described. Getter pan 25 is constructed of a metallic material, and includes a trough or depression 30 to hold getter material 35 deposited therein. An example of getter pan 25 may be one having a depression 30 in order of 0.03 inches or less in depth, and have an outside diameter in the order of 0.2 inches. Getter material 35 may be comprised of barium or any other suitable alkaline-earth element for removing contaminant gasses from the gas discharge cavity" (column 2, lines 40-53).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the old and well known barium alloy of Galbrech for the getter assembly of Podgorski in order to improve the method of introducing getter material into a gas discharge device, furthermore, since it has been held to be within the

general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding to claims 6, Podgorski discloses “in order to provide a getter, prior art ring laser structures and processes include a getter assembly consisting of a snap ring welded to a getter pan containing the getter material. This assembly is clamped inside the optical cavity of the ring laser structure. The getter material is flashed and the cavity closed off at its gas-filling pinch tube leaving the getter assembly inside the cavity. This system has several disadvantages. Particles are shed from the getter assembly due to shock, vibration, and/or temperature variations. This particulate matter contaminates the laser and reduces the useful life thereof. Further, a certain amount of contaminated gases is emitted from the getter material just before it flashes which also reduces the life of the laser” (column 1, line 35-48).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the snap ring of Podgorski for the ring laser angular rate sensor apparatus of Podgorski in order to securely and safely hold the getter material to the getter well.

Regarding to claims 7, 11, Podgorski discloses the claimed invention except for the specific dimension of the hole. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have arranged the dimension of the hole according to the design requirements, since it has been held that where the general

condition of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233. Furthermore, Applicant has not establish the criticality of the dimension of the hole to the invention in the disclosure, and neither comparative analysis nor study has been done to show the improvements and advantages of the claimed specific dimension of the hole over the prior art of record.

5. Claims 27-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 4,740,985 Podgorski.

Regarding to claim 27 and 29, Podgorski discloses in Figure 2, “the getter assembly in accordance with the present invention which serves as a getter assembly and an anode 18 and/or 19. It should be understood by those skilled in the art that the getter assembly in accordance with the present invention could be used as a separate component and not serve a dual function as an anode. Nevertheless the getter assembly shall be described here in its dual function capacity” (column 2, line 40-49).

Podgorski also discloses in Figure 2, “the getter assembly as illustrated in FIG. 2 is comprised of a housing 210 for forming a cavity 212 *getter well*. Housing 210 is shown to be cylindrically shaped in FIG. 2, but is only exemplary, and it should be understood that the shape of the housing and the cavity is not critical to the invention herein. The housing as is shown in FIG. 2 and the side view shown in FIG. 3 could include a mounting flange 214. Attached to the mounting flange is an end cover 216 *disk or diffusion barrier* for completely covering the passageway into cavity 212. The end

cover may, by way of example, be welded *seal* to the housing flange 214. The top of the housing includes an insulator material 230 which allows passage of electrodes 241 and 243 to be in communication with cavity 212. Connected between electrodes 241 and 243 within cavity 212 is a getter material 250 *a getter* suspended within cavity 212. The end cover 216 and insulator 230 are attached to housing 210 to form a gas tight cavity 212. Further, electrodes 241 and 243, passing through insulator 230 are also constructed to insure a gas tight cavity 212. Lastly, a pinch tube 260 is welded to housing 210 for purposes as will be described" (column 2, line 50 to column 3, line 2).

Podgorski further discloses in Figure 2, "the end cover which serves as a cover of cavity 212 also serves as an end cover for passageway 21. The material and thickness of end cover 216 is chosen to be permeable to gas in very minute quantities. Preferably the end cover is very thin and allows the hydrogen to diffuse through the cover and be exposed to the surface within cavity 212. For example, Zirconium is a material which can serve the intended function of end cover 216. In its intended operation, minute quantities of the hydrogen contaminant gas within lasing gas is allowed to molecularly pass through end cover 216 in order to be neutralized by the getter material within cavity 212. Thus, in this manner the gas contaminants can be eliminated from the lasing cavity. Because of the "sealing" function of end cover 216, no particulate getter material matter can ever enter into the passageways and interconnected cavities of laser block 10" (column 3, line 39 to column 4, line 2).

Podgorski discloses the claimed invention except for the diffusion barrier located on the getter. It would have been obvious to one having ordinary skill in the art at the



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time the invention was made to have arranged the diffusion barrier on the getter, since it has been held that rearranging parts of an invention involves only routine skill in the art.

*In re Japikse*, 86 USPQ 70.

Regarding to claim 28 it is old and well known in the art to utilize a barium alloy as the getter material for discharge device with inert gas, and further Applicant has disclosed that barium and titanium or zirconium alloys can used interchangeably as the getter material, and Podgorski teaches the use of titanium alloy as the getter material in column 2, lines 47-48. Furthermore, Podgorski discloses the claimed invention except for the getter composed of a barium alloy. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the barium alloy, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding to claims 30-32 and 34, Podgorski discloses the claimed invention except for the diffusion layer is composed of barium nitride. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize barium nitride as the diffusion barrier, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding to claim 33, the method of forming the diffusion barrier is not germane to the issue of patentability of the device or diffusion barrier itself. Therefore, this limitation has not been given patentable weight.

### **Response to Arguments**

7. Applicant's arguments filed February 17, 2004 have been fully considered but they are not persuasive.

In response to Applicant's argument that Podgorski '691 fails to teach or suggest the getter well is removed from a cavity and a method of restricting the getter. Examiner asserts that Podgorski '691 teaches in Figure 1, the getter well or guiding means 63 is located at a distance away from the optical cavity which consists of cavities 17, 20 and 23; and located in the gyroscope block. Also, as shown in Figure 1 of Podgorski '691, the getter well is located at a distance from the cavity and connected by holes or cavity 18 and 24 located in the gyroscope block between the getter well and the optical cavity, thus restricting the getter from the cavity. Thus, Examiner asserts that Podgorski '691 reference is valid and maintains the rejection.

Also, in response to Applicant's argument that Podgorski '985 fails to teach or suggest the diffusion barrier is located on the getter. Examiner asserts that as shown in Figure 2, the diffusion barrier or the end cover 216 of Podgorski '985, covers the diffusion barrier and it would have been obvious to one having ordinary skill in the art at the time the invention was made to have rearranged the diffusion barrier on the getter, since it has been held that rearranging parts of an invention involves only routine skill in

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the art. *In re Japikse*, 86 USPQ 70. Further, it would have obvious to one having ordinary skill in the art to have made the diffusion barrier on top of the getter forming an integral device, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. *Howard v. Stove Works*, 150 U.S. 164 (1893).


### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.  
June 1, 2004

  
**ASHOK PATEL**  
**PRIMARY EXAMINER**